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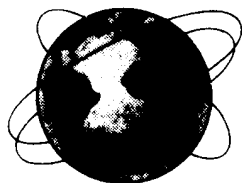
EARL W. FOELL

It's morning again for US R&D: joint labs and mollusks with iron teeth

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SUCCESS story:
Two years ago this column dealt with a bill struggling through Congress that was designed to help American industry compete in world markets. That bill's approach was simple. It allowed domestic rivals to form joint research and development consortia. It essentially shielded them from antitrust penalties if they researched new techniques and products *jointly* but produced and marketed them *separately*.



The aim of this little-noticed legislation was to allow domestic competitors to band together to produce: multimillion-bit computer chips, more efficient steel casting processes, safer diesel ex-

haust, artificial intelligence computers, plastics recycling systems, fuel cells, faster computer software-writing techniques, higher quality TV transmission, a better marriage of telephone and computer networks, and a menagerie of other better mousetraps.

Under century-old antitrust laws such collaboration had been *verboten* and might have subjected transgressors to triple damage suits.

Last year the bill became law. And even its drafters have been surprised at its success since then.

Nearly 50 research & development (R&D) consortia have been registered under the law. Each month two or three are added.

None have been in operation long enough to prove that joint research marks a fundamental change in terms of world competition, speedier research, or reducing duplicated efforts. But many R&D specialists believe such proof will come — especially in technologies that require elaborate and super-expensive investment or assembling large teams of scientists and engineers.

Firms that are big enough to hold their own at home in developing new technologies and products often encounter rivals in the global market that benefit from government-supported, multibillion dollar national R&D efforts. The new consortia pool resources where common needs and large size make a unified effort sensible.

A classic example of redundant research that joint R&D would have eliminated involves the automobile pollution-control device. The big US automakers spent billions on separately inventing a public-safety device that gives none of them a competitive sales advantage. Seatbelts, airbags, and safer bumpers fall into the same category.

Not surprisingly, the Motor Vehicle Manufacturers Association and the American Petroleum Institute have registered for joint R&D on exhaust emissions from vehicles not currently covered by pollution-control laws. A seven-member consortium is also exploring diesel exhaust. And a 34-firm consortium has been formed to research the toxic side effects of new chemical products and to train scientists in that field.

Among the more than two score consortia now registered, several are applying high-tech research to low-tech or "old-tech" industries.

One of the most dramatic — and desperately needed — is joint steel industry R&D. Some of that research has concentrated on improving existing lab techniques for continuous casting and rapid solidification of steel. Those processes would save huge amounts of energy, waste, time, and labor. They would make it possible to cast steel directly in exactly the thickness and alloy blend desired for the finished product.

The extent to which the supposedly stodgy old steel industry is venturing into imaginative new realms of joint research may be seen in one long-shot piece of research. A team of biologists is looking into the possibility of using a marine mollusk to produce iron. Mollusks consume iron salts in seawater to produce iron "teeth" with which to eat food. If genetic manipulation permits multiplication and farming of such creatures, it might be possible to extract dissolved iron from seawater with very low energy use.

One criticism leveled at R&D consortia is that they may rob individual companies of their most talented scientists. Another criticism argues just the opposite: that no firm in its right mind would send its best R&D people to a pool whose results will benefit competitors.

That charge may yet prove valid. But the most noted of the high-tech consortia — the Microelectronics and Computer Technology Corporation (MCC) of Austin, Texas — has gone a long way to answering the criticism. Its chairman, Bobby Inman (former head of the National Security Agency), has pushed hard to get his 21-member companies to give him an open hand in hiring. Industry specialists say he has succeeded. MCC is also hiring some of the brightest young scientists from graduate schools. So is the 33-firm Semiconductor Research Corporation of North Carolina's Research Triangle area.

In fact, one of the most crucial results of the joint R&D law may lie in the stimulus it gives to university-industry research cooperation. And that means attracting more young Americans into scientific and engineering careers — a strong national need.